

(Continued on eighth page.)

Horticultural.

VITALITY OF SEEDS BURIED IN THE SOIL.

Below we give Agricultural College Bulletin No. 5, which is a report of experiments begun by Prof. Beal of the Botanical Department some years ago, and will be found interesting:

In autumn of 1879, nearly six years ago, I began the following experiments with the view of learning something more in regard to the length of time the seeds of some of our most common plants would remain dormant in the soil and yet germinate when exposed to favorable conditions.

I selected 50 freshly grown seeds of each of 30 different kinds of plants. Twenty such lots were prepared with the view of testing them at different times in the future. Each lot or set of seeds was well mixed in moderately moist sand, just as it was taken from three feet below the surface, where the land had been plowed. The seeds of each set were well mixed with the sand and placed in a pint bottle, the bottle being filled and left uncorked and placed with the mouth slanting downward so that water could not accumulate about the seeds. These bottles were buried on a sandy knoll in a row running east and west, and placed 15 paces north-west from the west end of the big stone set up by the class of 1873. A boulder stone was set at each end of the row of bottles, which were buried about 30 inches below the surface of the ground. I should make an exception in the case of the acorns, which were placed in the soil near the bottles and not inside bottles.

On the 25th of July, 1884, I took up one of these bottles and began testing the contents. I might say, that after three years, I dug down to the acorns and found them all decayed. The other seeds were not disturbed at that time. The sand was kept moist by being placed in some shallow porous saucers, which were set in a very little water near the south window of our botanical laboratory. During the autumn the weather was unusually cool, but at other times and in September it was very warm. The sand was exposed in the middle of November when it was dried and kept in a cool room over winter and not disturbed till June 25, 1885.

This was the first freezing to which any of the seeds had been exposed. On the date last given the sand was again moistened and exposed in test plates. Some seeds germinated promptly and were occasionally removed for about three weeks when, on the 1st of July, the sand was well dried in the sun from the next day till July 25. The sand was again moistened during very warm weather when two seeds, besides those below marked, germinated. These two were both those of pepper grass.

The sand will be kept over next winter and again tested.

If we are unable to give good reasons for the long time required for some seeds to germinate, we cannot fail to see that it is beneficial to the plants. If all started promptly at once, they would crowd each other and most must perish. If they come struggling along at different times some of them will find favorable conditions for growth and the production of more seeds, one good crop of which will stock the earth for years to come.

Amorpha canescens, L. Pigweed, 19 germinated in 1884, 2 in 1885.

Ambrosia artemisiifolia, L. Rag weed, 0 germinated certainly. Several empty rotten coverings or shells were seen.

Brassica nigra, Koch. Black mustard, 0 certainly.

Bromus scaberrimus, L. Chess cheat, 0 certainly. Several old kernels, with chaff adherent, were found, but all were decayed or empty. In at least three instances one or more dead slender roots were found, showing that they had sprouted and died while in the bottles under ground.

About the same two species there was some confusion, but certainly some of each germinated in 1884 and in 1885.

I give the numbers about in the right proportion.

Capella Bursa-pastoris, Moench. Shepherd's Purse, 43 in 1884, 7 in 1885.

Lepidium virginicum, L. Peppergrass, 36 in 1884, 11 in 1885.

Erechtites acrofolia, Raf. Fire weed, 36 as springs up freely about new clearings, 0 certainly.

Euphorbia maculata, L. Spotted spurge, 0 certainly. In 1884 quite a number of seeds were found and they seemed plump and sound, but none sprouted.

Lycinus Githago, Lam. Common cockle, such as infests wheat fields, 0 certainly. Many old empty coverings were seen.

Anthemis Cotula, L. May-weed, 14 germinated in 1884, 12 in 1885.

Malva rotundifolia, L. Common mallow, 1 (3) germinated. Many empty seed-covers were seen.

Oenothera biennis, L. Evening Primrose, 40 germinated in 1884, 1 in 1885.

Plantago major, L. Common broad-leaved plantain, 0 certainly. Some empty seed-covers were seen.

Polygonum Hydropiper, L. Smart weed, 3 certainly. Many empty seed-covers were seen.

Portulaca oleracea, L. Purslane, 19 germinated in 1884.

Quercus rubra, L. Red oak, 0 certainly. All dead after three years.

Rumex crispus, L. Narrow or curled dock, 44 germinated in 1884, one in 1885.

Salsola glauca, Beauv. Fox-tail. Pigeon-grass. This is the species requiring most heat and the one starting last of the two common weeds; 18 germinated in 1884, 21 in 1885.

Salsola media, Smith. Clinck-weed, 36 certainly in 1884.

Thapsa occidentalis, L. Arbor Vite or white cedar, 0 certainly. Many empty seed-covers were seen.

Trifolium repens, L. White clover, two in 1884. This small number is quite surprising.

Urtica Thapsus, L. Common nettle, 38 germinated in 1884, four in 1885.

NOTE—As will be seen, the above ex-

periment is not yet complete, but the new law demands of me two bulletins a year, and with the short time for preparation this is the best I can do.

AMERICAN POMOLOGICAL SOCIETY.

The meeting of the American Pomological Society, which opens at Grand Rapids on September 9th, and lasts three days, will be an event in the history of horticulture in this State. Michigan should have an exhibit of fruits there that will be a fitting representation of the position she occupies in the pomology of the country. The fruit-growers should see to it for their own credit, as an advertisement of what the State is capable of doing. The high standing of the delegations to be present from the various States, and the very interesting programme which has been arranged give promise that this will be the grandest meeting of pomologists ever held under the auspices of the Society. That visitors will be well cared for while in attendance those who know the people of Grand Rapids have every confidence. The papers and discussions should be heard by every fruit grower in the State, and especially the younger ones who have yet experience to gain. The programme will be as follows:

Discussion of new fruits, apples, pears, peaches, etc.—W. C. Barry of New York, T. S. Hubbard of New York, W. C. Strong of Massachusetts.

Proper nomenclature of fruits.—J. J. Thomas of New York, P. Barry of New York, T. T. Lyon of Michigan, Robert Manning of Massachusetts.

Nomenclature of Russian apples.—Chas. Gibb of Quebec.

The strawberry.—F. M. Hexamer of New York.

The causes of produce colors in fruits and their design in nature.—Jos. H. Bourn of Rhode Island.

Influence of pollen on the size, form, color, and flavor of fruits.—C. M. Hovey of Massachusetts, A. S. Fuller of New Jersey, Prof. W. R. Lazenby of Ohio, W. Crawford of Ohio.

American grapes.—T. V. Munson of Texas, J. B. Moore of Massachusetts, G. W. Campbell of Ohio.

Small fruits.—Granville Cowing of Indiana, C. A. Green of New York, E. Williams of New Jersey.

Fruits of the northeast.—Dr. T. S. Hoskins of Vermont.

Fruits of the north.—D. W. Beadle of Ontario.

Fruits of the northwest.—Peter M. Giddens of Minnesota, Prof. J. L. Budd of Iowa.

Fruits of the south.—F. J. Berckmans of Georgia, T. V. Munson of Texas, John Saul of District of Columbia.

Fruits of the Pacific Slope.—Dr. J. Strenzel of California.

Lessons from the world's exposition.—L. A. Goodman of Missouri, T. T. Lyon of Michigan.

Relative value of fruits for canning and drying in comparison with those for dessert and market.—Josiah Hoopes of Pennsylvania.

Insects injurious to fruits and remedies.—Prof. Wm. Sanders of Ontario, Prof. C. V. Riley of District of Columbia, Prof. W. R. Lazenby of Ohio.

Recent experiments with injurious fungi or diseases of plants with remedies.—Prof. T. J. Burrill of Illinois, Prof. C. Arthur of New York, and Dr. C. B. Bessey of Nebraska.

Distasteful shipments of fruits, packing, and other arrangements to secure success and profit.—Parker Knapp of Illinois, G. C. Brackett of Kansas.

The best latitude for leading varieties of apples for marketing.—W. H. Ragan of Indiana, C. E. Brown of Nova Scotia.

The best methods for preventing or protecting from frost.—Prof. W. R. Lazenby of Ohio, F. K. Phenix of Wisconsin.

The best methods of exhibiting fruits.—R. F. Furness of Nebraska, Prof. S. Tracy of Missouri.

Needs and methods of gathering fruit statistics.—Hon. W. C. Chamberlain of Ohio.

Methods of conducting State and local horticultural societies.—Geo. Elwanger of New York, L. B. Pierce of Ohio.

Hard problems in pomology with hints looking towards improvements.—J. J. Thomas of New York, Prof. J. L. Budd of Iowa, Judge G. W. Lawton of Michigan.

Injurious fungi and diseases of plants.—A popular illustrated lecture on the evening of Sept. 9, by Dr. C. E. Bessey of Nebraska.

Economic entomology.—A popular illustrated lecture on the evening of Sept. 10, by Prof. A. J. Cook of Michigan.

The closing exercises, on Friday evening Sept. 11, will consist of many very short practical talks.

TO FRUIT-GROWERS AND OTHERS.

GRAND RAPIDS, August 10, 1885.

Those people in Michigan who expect to attend the meeting of the American Pomological Society at Grand Rapids, Sept. 9-10 and 11, should apply for certificate for reduced fare to Prof. Wm. J. Beal, Agricultural College, Michigan; and enclose two stamps to cover postage and printing.

Write him soon that you may not be overlooked in the hurry of the last few days. Regarding exhibits of fruit, for information correspond with E. H. Scott, Ann Arbor. Any fruit requiring cold storage will be cared for free if sent express paid to Wm. K. Munson, Grand Rapids, Michigan, with a postal card to notify him.

CHAS. W. GARFIELD.

The Aphids.

At the recent meeting of the Douglas and Ganges pomological society, President Lyon of the State Society, said he had encountered this pest upon apple trees, but not very much upon peach trees; but he believed them to be of the same class. He said the aphids was not the product of eggs laid by any fly, but that there was a constant reproduction without the process of incubation, all summer. In the fall the winged males appear, but until then eggs are laid then for the first time, and remain under the bark, where they hatch. Their work of propagation and destruction commences immediately, and the manner in which they do their work is not by eating the foliage but by boring the bark and leaves and sucking the sap. For this reason they can not be killed with Paris green, unless the poison is applied sufficiently strong to kill by individual contact; in which case it will also kill the tree. But strong soap suds will kill them. The suds should be made as strong as the leaf will bear, and applied with a small force pump, in a spray. Sprinkling will not reach them with certainty, as they hide under the leaves after curling begins. It may take two or even three applications, but it will be time well spent and money in the growers' pockets.

NOTE—As will be seen, the above ex-

WASTE AND WANT.

BY PAUL JOHNSTON.

No. 1.

THE TIMBER SUPPLY.

Waste and want have generally a sure and reciprocal relation to each other. Wherever there is a great waste of any material amply supplied by nature, there is quite sure to be at some time, a scarcity or want of the same. And whenever such a want comes to be felt, it is generally presumptive evidence that there is or has been at some time a wasteful use of the material. For instance, the supply of timber in the native woods of most countries—prairie or desert regions excepted—is ample for all wants for which timber is required, with the means of perpetual reproduction in the growth of young trees. But the wasteful manner in which the forests are slaughtered—the haste to get them out of the way, with scarcely a thought for the future supply, is rapidly resulting in a scarcity of that necessary material.

The idea prevails to a great extent, that we are under no obligation to look out for the needs of future generations; that the coming millions must take care of and provide for themselves; that the present occupants of the earth have the right to use up and despoil all within their reach to their own best advantage, without regard to their successors either in the immediate or far distant future. If this be the truth, they ought not to leave any successors. It is absurd to say that the race has a right to multiply and replenish the earth, and, at the same time, to render the earth unfit for habitation. The present inhabitants of the world may not be under obligations to provide for those to come, beyond the care of their immediate descendants in infancy; but they have no right to destroy the materials nature has provided for future as well as present wants, nor to unnecessarily exhaust the productive powers of the earth in any great portion of it, as to render it uninhabitable.

Timber is not food or clothing; but it is, in the shape of lumber, to such an extent a necessity for purpose of shelter for stock and harvested crops, as for human habitations, that the want of it in many sections of the country is already seriously felt. Conceding that dwellings may be built mostly of brick or stone and iron, the expense of such dwellings would be very great, especially if built nearly all or entirely of such materials; very few could afford them, and many families would be crowded into much smaller dwellings than now generally used. But barns and sheds of brick or stone and iron would be decidedly too expensive for most farmers at the present day; and such buildings, as shelter for stock, hay and grain, are about as necessary for farmers as dwellings for themselves. When the time comes that farm buildings must be erected wholly or mostly of other materials than timber and lumber, the expense must be so great that the surplus income of an average farmer for many years, almost for a life-time, will be used up in paying for them. And lumber for building and other purposes is already comparatively high, and is growing scarce and higher priced as the settlements of the country expand and the demand grows wider.

"Well," says some one, "how is timber being wasted?" In many ways; by farmers themselves in clearing up so much of their land that there is not enough timber left standing or growing for their own supply. Until quite recently, and even yet, in some sections, by burning much of the timber to get it out of the way. In some sections of Michigan, only some thirty or thirty-five years ago, farms were cleared up and enough splendid black walnut trees cut down and split into rails or burned, to have been worth if left standing till the present time, more than the present value of the farms. Perhaps that was the best the settlers then could do with it, but it does seem as though there should have been enough foresight of its inevitable future value to have induced them to have saved some of the best of it.

And now every farmer, except those having very small farms, should save, if he has it, a few acres of young growing timber for future supply. On farms where the timber has already been cut off, plantations of young timber should be started, which in twenty or thirty years would furnish a profitable return; and if planted close, cutting from it, in the way of thinning out, could be commenced in ten years after planting.

But the greatest waste of valuable lumber timber is in the pines. Not only is there an immense slaughter of pine to supply the demand for lumber, upon which as owners of pine lands, and not as lumbermen, immense profits are made out of consumers—but a considerable portion of it is wasted in the woods. The lumbermen cut from the fallen trees the best logs, leaving many that would make cheaper lumber, good enough for many uses, but which, in many localities it does not pay so well to take off. This timber and the fallen tops and limbs, becoming dry during the summer, furnish combustible material for destructive forest fires, in which much standing timber is destroyed, and the fires often sweep over the partially cleared farms, destroying buildings, crops and even life, as in the notable fires a few years since in Tuscola and Huron Counties, and frequently in other sections. All lumbermen should be required by law to clean up all tops and parts of the trunks of trees left, so that no such incendiary material should cause destruction of others' or the public property.

In some of the countries of Europe the scarcity of timber has become so great that the governments have found it necessary to institute a system of official supervision and regulation to save the forests from destruction and secure the greatest possible production of timber, by permitting the cutting of only the older trees, and saving the younger and faster growing ones.

This protection of the public interests by the European governments is called

paternal, quite the reverse of our American system, where it is deemed the proper thing to leave all such matters to individual interest and enterprise, and for every man to do as he chooses, not only with his own, but to a great extent with the public property, if he can any way get their clutches on it; and that the public lands should be within the reach of all purchasers and monopolists and speculators, at low prices, in large tracts, to the great disadvantage of settlers and those who are seeking homes. The prevalent theory is that our State and national governments should do little more than protect the citizen's life against the murderer, or his horse from being stolen. To do much more is considered interference with liberty and individual enterprise. But it is hoped the time is coming when our system of government will, in some respects, become more of a paternal character.

The national government forty years ago, ought to have reserved its best tracts of timber lands for future supply, selling only the larger trees, as the wants of the people required, and saving the smaller ones for larger growth, under official supervision, with some such regulations as adopted in Germany.

Nearly all the valuable timber lands are now in the hands of land monopolists and speculators, but the government has the right and should exercise it, of taking private property for public use, by making compensation to the owners. And this now seems to be the only way to prevent the indiscriminate destruction of the remainder of our pine forests, and secure and preserve a durable supply for the future.

If the present system of waste of timber continues, the scarcity and want will in time be very great, even within the life of the present generation, aggravated by the fact that monopolists control what there is of it.

California Horticulture.

The biennial report of the California State Board of Agriculture is just out. The State Inspector, S. F. Chapin, says in respect to the law against injurious insects in San Jose Co.:

"The condition of the infested orchards has become as a rule most satisfactory, and now again large profits are accruing to those formerly discouraged orchardists who have faithfully combated the scale. Where three years since orchard land was at a very low figure it is doubled and more than doubled in value."

Of the codling moth he says: "The ravages of this insect have been noticed in almost every fruit growing district in the State. Regarding the means of suppression I can offer encouragement from the observations of another season. Where the really vigorous and systematic effort has been made good results have been attained. It should, however, be noted, that those who are not willing to make an enterprising and constant warfare upon this insect, should not engage in the culture of apples and pears. A few instances of quite effective work upon a large scale may be mentioned to buoy up our hopes and keep our interest from flagging. One very important fact observed this season is that the greater part of the loss has occurred during September. It should cause us to use every effort to destroy the earlier broods. In the largest apple orchard of California the work done this season has resulted in saving the larger portion of an immense crop of fruit."

He relates the result of experiments with bands around the trunks of 50 apple trees in his own orchard, which he sums up thus: "As accurately as can be figured, the loss upon the entire crop is nineteen (19) per cent, and of this, as per tables, three-fourths occurred during September. A question here presented. Out of 36,000, in round numbers, infested apples, 10,000 larvae were caught in the bands; where were the balance? The larger number were in the infested fruit when gathered from the trees and taken up from the ground and then destroyed."

Mr. Gray, horticultural superintendent on General Bidwell's estate at Chico, in remarks at the meeting, spoke of one cherry tree from which he gathered 1,700 pounds of fruit that season. At five cents a pound, at which it was sold to the canner, the product of an acre of such trees would have been \$5,000.

Horticultural Notes.

CLARE SHEPHERD'S vineyard at Casco has been completely devastated by the cut-worms; not one fruit had remained. Mr. Sheffer had about 350 Concord vines. He kept them clean till two years ago, but last year he sowed turnips between the rows. Mr. Sheffer cultivated early in the spring, taking off leaves of the turnip crop and all other growth. The worms took to the grape vines from lack of other food. It would be better to leave cultivation to a later time.

C. M. WENZ, in the *Prairie Farmer*, assures us that the tomato worm, so much feared by many people, is harmless so far as direct injury to man is concerned. Hand picking of the worms is the most effective remedy for garden patches. The moths are easily killed by placing molasses mixed with a little salt beer to which has been added a little fly poison or some similar substance, on boards in various parts of the patch. The moths will eat and die.

A WELL-KNOWN horticulturist accounts for the many differing opinions as to the value of the small fruits, as strawberries, raspberries, etc., by the fact that one location which will produce a certain variety to perfection will not be as good for another, and that the first variety taken to another location will not do as well. He thinks that varieties which originate from seedlings are likely to do as well through several different seasons if they can be kept on soil like the original. The old Hovey seedling originated in a heavy, strong clay soil. It would always do well on that kind of soil, but on light sandy soil, where the Charles Downing would do well, you could not get half a crop. That has been his experience with all berries.

The Elmira Farmers' Club, called upon to name a remedy for bugs on cucumber vines, mentioned tobacco, moistened with kerosene and sprinkled on the vines when wet with dew; wood ashes; slaked lime. A safe and effective application to vines troubled with bugs was mentioned by one of the members—cow man-

ure stirred with water to the consistency of thin paste and spread upon the leaves in amount sufficient to coat them. This is so offensive to bugs that they will not eat while the mixture remains; but it washes off readily by rains, and even heavy dew soak it off to such an extent as to make renewal necessary. The treatment involves some expense of labor, but that is all, and its merit may be seen in the immunity from bugs, and the stimulus given to growth; for the manure when washed off becomes available for the plants.

MR. JACKSON DUNSON, of the Arnold Arboretum, says that to raise plants of the conifers from seed, such as pines, spruce, larch, cedar and hemlock, requires much more care and attention to grow from seed than any other class. Many of the finer kinds it is impossible to raise out doors here. The ground for such as are planted outdoors should be rich, light loam. The same principles apply in sowing the seeds of deciduous trees, but greater care is requisite at every step. They should be more carefully sheltered and shaded, but especially when the seed is old, they do not require so much moisture during germination. Where pine needles are plenty, they may be strewn between the rows thinly as a mulch. The critical time is the first three months of their existence. The use of lath screens on seed beds saves a great amount of labor in watering, and if the plants are neglected for an hour or so the result is not so disastrous as when the young seedlings are exposed to the sun, and they are especially needed for young seedling conifers. The situation for such should be chosen in as sheltered a place as possible both from the midday sun and drying winds; the east or north side of a hedge or fence is a favorable position.

MR. B. DICKINSON of Hastings, bought a colony of bees in April, 1884, for which he paid \$6. He took 180 lbs of surplus honey from the hive, which realized \$18, and sold the bees in October for what he paid for them in the spring.

The *Irish Farmers' Gazette* says that few people have any idea of the labor that bees have to expend in the gathering of honey. Here is a calculation which will show how industrious the "busy" bee really is. Let us suppose the insects combine their attentions to clover fields. Each head of clover contains about 60 separate flower tubes, in each of which is a portion of sugar not exceeding the five-hundredth part of a grain. Therefore, before a grain of sugar can be got, the bee must insert its proboscis into 500 clover tubes. Now, there are 7,000 grains in a pound, so that it follows that 3,500,000 clover tubes must be sucked in order to obtain but one pound of honey.

The bee moth is the color of old wood, and the wings cross one another, turning up like the tail of a fowl. It may be seen lurking around hives in the evening, trying to gain admittance. Where fowls have the run of an apiary they catch many of these moths on the wing. Persons speak of moths running out bees! It would be as proper to say that weeds run out corn. If from any cause, such as queenlessness, a colony becomes extinct, or nearly so, the moth enters and takes possession, and it is a mistaken idea to attribute the destruction of the bees to the moth. Comb in frames can be kept over the summer free from the depredations of the larvae of the bee moth if they are suspended in the light and air and are three or four inches apart. Moths love darkness and uncleanness, and deposit their eggs in cracks and crevices about their hives, where bees cannot gain access to them.—*Rural Canadian*.

WHEN BEESWAX is chewed it should have no disagreeable taste and must not stick to the teeth. In an adulterated wax, the nature of the foreign material can generally be detected by the taste; the addition of fat can generally be readily detected. If it sticks to the teeth the presence of resin may be assumed. A simple method of detecting the presence of fat in wax consists in melting it, and placing a drop on a piece of woolen cloth. After it is perfectly cold and solidified a few drops of ninety per cent. alcohol are poured on and the cloth rubbed between the hands. The wax will be converted into dust, and will easily separate from the cloth if it contains no fat, and will leave greasy spots. In examining wax candles, they should be broken to see whether the interior is of the same material as the surface, because adulterations of this kind occur quite frequently.—*Rural Canadian*.

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Percheron Horses, and Vermont and N. Y. Registered Merino sheep. Imported Trojan 1905 (2000) at head of and Young stock for sale.

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MICHIGAN POULTRY FARM, -W. R. & I. S. Phillips, Proprietors, Battle Creek, Mich. Breeders of pure blood poultry, *white and Brown Leghorns, Black Cochins, Langshans, Wyandottes and Silver-beard Polish. Eggs from \$1.50 to \$3.00 per 15. Write for prices on fowls.*

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FOR SALE.—Jersey Cattle: Albert Fanning and Co.massees. Bulls kept: Peter Navarro 9173 A. J. C. C., Depretia Pack 14065 A. J. C. C., Khedive Fanny's Son 14554 A. J. C. C., by B. E. BULLOCK Toledo, Ohio. 7/14-15

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J H EATON, Bucyrus, Ohio, breeder of Im-

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H BRADFORD, Rochester Depot, Ohio, breeder of Registered Poland China swine. Stock for sale. Correspondence solicited. a10-12

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PINE GROVE HERD.
Porter, Cass Co., contains over 100 head of Pure-

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Poland-China Swine a Specialty.

I have a prime lot of March and April pigs that
will be ready for shipping as soon as weaned.
Stock recorded in Ohio Poland-China Record.
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My herd is dark in color and bred from the most noted herds of Ohio and Michigan. Figs sired by Arnold's Sambo, Black Tom, Hopeful, Murphy's W. S. and Dixie. Stock first class. Prices reasonable. Special rates by express. CH

SHORTHORNS FOR SALE.
Three young bulls fit for service, well bred and good individual animals. Also some choice heifers.

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ABERDEEN-ANGUS.
H. C. AULD, late of Scotland, has 20 head of the Champion Polled Cattle for sale. The best blood in existence. Pinckney, Mich.

Frenchmen do not now make beyond a certain number of reams annually.

WANTED LADIES AND GENTLEMEN who wish to make \$8 to \$4 a day easily at their own homes. Work sent by mail. No canvassing. Address with stamp **Crown Mfg. Co., 394 Vine St., Cin. O.**

Mr. Thomas Bates, whose particular family of Shorthorns have been the most lauded and the best abused of any particular one, owes its characteristics and merits to in-breeding, which Mr. Bates followed to a greater or less extent all his life. Well, how do these in-bred animals stand to-day? Why, they sell for more money and are more thought of than any other by at least a majority of breeders, and in the recent contest between the various breeds of improved cattle at Chicago, we find the son of Mr. Bates in-bred family of Duchesses, Clarence Kirklevington, winning the highest honors over all, whether Hereford, Polled Angus, or Shorthorns of mixed breeding.

At this present moment there is in process of formation in this country a breed of horses which I predict, ere a quarter of a century rolls around, will be the equal of the thoroughbred in popularity. I refer to the American trotter—an animal that owes its existence and merit to the enterprise and brains of the American breeder. I say it is in process of formation as a distinct breed. As yet the best methods of breeding it are disputed points, and many of its most illustrious examples appear to have been happy accidents rather than the results of skill on the part of their breeders. But gradually, and surely, the trotting horse is being evolved, and those breeders who have so far become noted in the work of improvement, talk of in-bred Hambletonians, in-bred Clays, etc., showing conclusively that they are fast following in the footsteps of those who have gained fame as improvers of our domestic animals. Never will we have a race of trotters who will stamp their individuality upon their progeny so as to render the breeding of trotters something more than a lottery, until in-breeding has given them that prepotency which alone renders a stock animal valuable. In the auction market to-day the more frequently a trotter

over, because they have not observed the conditions necessary to success. Inbreeding has had to stand sponsor for poor feeding and over-feeding, badly ventilated and unventilated stables, and others so dark that the eyes of the animals confined in them are weakened, or perhaps the sight destroyed entirely; the coupling of inferior specimens together, which as assured results in perpetuating the same quality, there as it does the good ones. This latter cause is at the bottom of most of the failures. To successfully carry out the principles of in-breeding, a person must understand physiology, be conversant with the anatomy of the eye, and be competent to detect and have an eye quick to detect the slightest deterioration from the standard he has adopted. His judgment must be superior to all outside influence, and he must have the courage to cull mercilessly every animal that is not good, if not better than its progenitor. In the thoroughbred horse the course is the great rectifier of mistakes in breeding. No animal below the standard can ever hope to become a winner, and none but those who have proved themselves good qualities on the track ever used to breed from. If there was some way in which cattle and sheep could be as systematically culled, and weak, mishapen or inferior specimens given to the butcher's block instead of the breeding-pen, the great question of maintaining the purity of the flocks and herds would, I believe, become as obsolete as it has in the case of the thoroughbred horse.

Lacerated Wound in a Mare.

00 per doz.; L. M. raisins, \$3 00@3 10; London
00 per doz.; \$3 40 per box.
Hay—Baled quail at \$12@13 per ton on track;
rom store, \$1 more to charged. Straw is steady at
\$600 per ton for baled.
Beans—Sellers are getting \$1 27@1 30 for car
lots of fine picked stock. Unpicked are selling at
\$1 00@1 00 per bu. Market very dull.
Potatoes—Quoted at \$1 15@1 30 per bbl., and
\$2 85 per bu.
Salt Fish—White fish, \$5 25 per 100 lbs.; trout,
\$ 25.
Onions—Southern quoted at \$2 50@2 50 per bbl.,
\$900@1 00 per bu.

Larve sold Rance 7 at \$50 lbs at \$4.50.
Merritt sold Rance 7 at 254 lbs at \$4.50.
Giddings sold Rance 12 at 230 lbs at \$4.50.
Jedele sold Webb 55 at 172 lbs at \$4.30.
Rupert sold Webb 12 at 193 lbs at \$4.25.
Griffin sold Webb 102 at 143 lbs at \$4. and 96
at 162 lbs at the same price.
Spencer sold C Roe 75 at 301 lbs at \$4.10.
Wyman sold John Robinson 25 at 112 lbs at \$4.10.

King's Yards.
Monday, Aug. 17, 1886.
CATTLE.

The market opened up at these yards with the largest number of cattle on sale that we have had for several months. There was a good at

NEW ADVERTISEMENTS



\$1.75! \$1.75!

week Shipments 29,334. The supply of hogs on Monday numbered 14,000. The market ruled steady, with prices in the following classification: Prime light hogs sold at \$4 05 to \$4 10; Extra light hogs sold at \$3 95 to \$4 00; Good light hogs sold at \$3 85 to \$3 90; Poor to prime light hogs sold at \$3 40 to \$4 00; Inferior mixed to choice heavy, \$3 05 to \$3 65; with skips and culls at \$3 30. A few extra heavy hogs were sold at \$4 10 to \$4 20. On Tuesday the market was about the same. An extra 500 culls was added to price, heavy hogs gaining slightly more than light hogs fell off 3 cents. On Wednesday the market was about the same. On Thursday the market was about the same. On Friday the market was about the same. On Saturday the market was about the same. On Sunday the market was about the same.

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Twelve thousand acres of farming land in Gladwin county, Michigan. Good soil, good water, and one of the most healthy counties in the State. For particulars inquire of: **SURENDS POSTER, agent** in charge of the Gladwin Land Office, or of **BUTMAN & RUST, Saginaw City, Mich.** Plate furnished on application. a14-7

SESSION 1888-9.
The regular course of lectures will commence in October 1888. Circular and information can be had on application to **DR. A. LIAU FARD, M.D.,** (Surgical Surgery) with headquarters at the **Medical** Dean of Faculty. m14-7

FOR SALE.
I will sell my fruit farm near Muskegon, Mich. 40 acres in all, 19 set out to muskegon, about 3,300 trees, 3,000 bush vines and 400 plum trees. Price \$2,000.00. For particulars inquire of **A. W. HUSTON,** part-carpenter, address **A. W. HUSTON,**

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00 per doz.; L. M. raisins, \$3 00@3 10; London
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Hay—Baled quail at \$12@13 per ton on track;
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SESSION 1885-6.
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I will sell my fruit farm near Muekegon, about 3000 acres in all, 19 set out to muskegon, about 3,300 set out in all, 3,000 grape vines and 400 plum trees. Price \$2,000.00. For particulars inquire of: **A. W. HUSTON,** part-carpenter, address **A. W. HUSTON,**

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